Remarks

Claims 84-140 are pending in the Application.

Claim 125, 135, 138 and 140 stand allowed.

Claims 112-124, 126-133, 136, 137 and 139 stand rejected.

Claim 134 is objected to.

Claims 84-111 are cancelled herein without prejudice.

Claims 112 and 134 are amended herein.

Claim 141 has been added herein.

I. RESTRICTION UNDER 35 U.S.C. § 121

Examiner has restricted Claims into two Groups: Claims 84-111 (Group I) and Claims 112-140 (Group II). Office Action at 2. Applicants confirm their election, without traverse, of Claims 112-140 belonging to Group II.

II. REJECTION UNDER 35 U.S.C. § 112, ¶ 2

Examiner has rejected Claim 139 under 35 U.S.C. § 112, ¶ 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Examiner contends the limitation "different types of single-walled carbon nanotubes" is indefinite. Office Action at 3.

Applicant points out that "different types of single-walled carbon nanotubes" are single-wall carbon nanotubes characterized by different (m,n) indices. This correlation between nanotube type and (m,n) indices finds support in the Application. In fact, examples abound. "The single-wall carbon nanotube can be of the metallic type, i.e. arm chair or (n,n) in configuration or of the insulating type, i.e. (m,n) in configuration." Application, p. 8, ll. 8-10. "This fact may be utilized to facilitate separation of tubes by type, i.e., (n,n) from (m,n)." Application, p. 32, ll.16-17. "It is also possible to take advantage of the different polarization

and electrical properties of SWNTs having different structure types (e.g., arm chair and zig-zag) to separate the nanotubes by type." Application, p. 33., ll. 8-11.

Furthermore, the correlation between (m,n) indices and nanotube type is established and known, and those of skill in the art will recognize that carbon nanotubes with differing (m,n) indices are different nanotube molecules with different physical properties and, consequently, carbon nanotubes of different type. See, for example, Dai, "Carbon Nanotubes: Synthesis, Integration, and Properties," Acc. Chem. Res., 35, pp. 1035-1044, 2002, which states, "The (m,n) indices determine the diameter and chirality, which are key parameters of a nanotube. Depending on the chirality...SWNTs can be either metals or semiconductors...even if they have nearly identical diameters. Thus, there are infinite possibilities in the type of carbon tube molecules." Additional descriptions of using (m,n) indices to describe carbon nanotube types can be found in the following references: Ebbesen, "Carbon Nanotubes," *Ann. Rev. Mat. Sci.*, Vol. 24, p. 235, 1994; and Dresselhaus *et al.*, *Science of Fullerenes and Carbon Nanotubes*, Ch. 19, Academic Press, San Diego, 1996.

Accordingly, Applicant asserts that the limitation "different types of single-walled carbon nanotubes," as required by Claim 139, is not indefinite. As such, Applicant respectfully requests that the Examiner withdraw the rejection of Claim 139 under 35 U.S.C. § 112, ¶ 2 as being indefinite.

III. REJECTIONS UNDER 35 U.S.C. § 102

Examiner has rejected Claims 112-119, 122-124, 126-132, and 136-137 under 35 U.S.C. § 102(a) as being anticipated by *Kiang et al.*, "Carbon Nanotubes with Single-Layer Walls," Carbon, 33(7), pp. 903-914, 1995 ("*Kiang*"). Office Action at 3. When doing so, the Examiner has relied upon *Zhang et al.*, "Microscopic structure of as-grown single-wall carbon nanotubes by laser ablation," Philosophical Magazine Letters, 78(2), pp. 139-144, 1998 ("*Zhang*") purportedly to show a "state of fact."[1] *Id.*

[1] There are only three instances under which a second reference can be used when making a §102 rejection, namely to: (A) [p]rove the primary reference contains an enabled disclosure; (B) [e]xplain the meaning of a term used in the

Regarding Claims 112-119, 122-124, 126-132, and 136-137, Examiner contends that, because *Kiang* teaches that single-walled nanotubes tend to aggregate into bundles, the nanotubes within said bundle running substantially parallel to one another, and because "*Zhang* teaches that the tubes have a homogeneous diameter and are packed into a two-dimensional triangular lattice," it is inherent to the bundled single-walled nanotubes [of *Kiang*] that they have a homogeneous diameter. Office Action at 3.

Anticipation requires each and every claim to be found within the cited prior art reference. Claim 112 has been amended to require "A substantially two-dimensional array of single-wall carbon nanotubes." The bundles of *Kiang* are not substantially two-dimensional. A "substantially two-dimensional" entity would have the morphology of a sheet, whereas *Kiang's* structures are fibers.

Claims 112-119 and 122-124. *Kiang* does not teach the requirements of amended Claim 112, nor is such an array (of Claim 112) inherent in the nanotube bundles disclosed in *Kiang*. To help differentiate between the array of Claim 112 and the nanotube bundles disclosed in *Kiang*, an embodiment of such an array is described in the Application, p. 38 *ll.* 25-30, wherein [This] "substantially two-dimensional array made up of single-walled nanotubes aggregating (e.g., by van der Waals forces) in substantially parallel orientation to form a monolayer extending in directions substantially perpendicular to the orientation of the individual nanotubes." and p. 39 *ll.* 1-5, "Such a molecular array is illustrated schematically in **Fig. 8**." Fig. 8 shows nanotubes with short lengths perpendicular to a two-dimensional plane. In contrast, *Kiang* describes bundles of nanotubes having the shape of ropes, rather than substantially two-dimensional arrays or planes. These bundles would not be recognized by persons of skill in the art as being two-dimensional arrays comprising single-wall carbon nanotubes.

Moreover, the above argument, based on *Zhang* (a non-prior art reference),[2] that bundled single-walled nanotubes inherently have a homogeneous diameter is incorrect. The diameter

---

primary reference; or (C) [s]how that a characteristic not used in the reference is inherent. *See* M.P.E.P § 2131.01. The only one possibly pertinent here is the third instance, "C." *Id.*

[2] *Zhang* was published in the Philosophical Magazine Letters in 1998. The present Application is a division of co-pending prior application Serial No. 10/000,746, filed on November 30, 2001, which is a continuation of prior application Serial No. 09/242,040 filed on September 13, 1999, which is the 35 U.S.C. § 371 national application of

homogeneity of the single-wall carbon nanotubes is highly dependent on the synthesis process. The nanotubes of *Kiang* and *Zhang* are made by processes that, not only differ substantially from each other, but also differ from the processes employed to make the present invention. Additionally, reports exist showing ropes of single-wall carbon nanotubes in which the nanotubes within the rope have diameters which vary widely. *See* Nikolaev *et al.*, "Diameter doubling of single-wall nanotubes," Chemical Physics Letters, 266 (5-6), pp. 422-426, 1997, Fig. 2 (Exhibit A). Thus, there is nothing to suggest that the features of the nanotube bundles described in *Zhang* are necessarily present in *Kiang*, and there is no basis for asserting such inherency. *See Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1269, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1999) ("To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. . . . 'Inherency, however may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.'") (citing *In re Oelrich,* 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981).

Claims 113-119 and 122-123 depend from amended Claim 112, therefore, Claims 113-119 and 122-123 are also not anticipated for the same reasons as stated above for Claim 112.

In addition, Claim 113 requires "the single-wall carbon nanotubes comprise single-wall carbon nanotubes having a homogeneous characteristic selected from the group consisting of lengths, diameters, helicities and combinations thereof." *Kiang* does not include the required limitation of any homogeneous characteristic stated above. Examiner's argument (Office Action at 3) that single-wall carbon nanotubes have inherently homogeneous diameters when aggregated in bundles is misplaced for reasons stated above. For this additional reason, Claims 113 and its dependent Claims 115, 117, and 119, are not anticipated.

Claims 124 and 126-132. Regarding Claims 124 and 126-132, Examiner contends that "Kiang teaches that the as-grown nanotube bundles are found growing from metal carbide

---

International Application Number PCT/US97/13896 filed on August 8, 1997, which designated the United States, claiming priority to provisional U.S. patent application Serial Number 60/023,732 filed on August 8, 1996. Thus, putting aside any benefits this Application receives due to its provisional application, this Application has at least an effective filing date of August 8, 1997. Accordingly, *Zhang* is not prior art.

particles, deposited on chamber walls, deposited as a film on the cathode of an arc-discharge apparatus, grown on the cathode tip of an arc-discharge apparatus, and grown on graphite (pages 903-904). Any of the above may be viewed as a substrate to which the nanotube bundles are attached." Office Action at 4.

Applicant respectfully points out that *Kiang* does not teach the requirements of Claim 124 which requires "a substantially two-dimensional array comprising single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein the single-wall carbon nanotubes are attached to a substrate," nor is such an array inherent in the nanotube bundles disclosed in *Kiang*. Regarding Claims 124 and 126-132, the Examiner cites text in *Kiang* that refers to what *Kiang* terms "sea-urchin" particles of nanotubes. These small semi-spherical structures are not substantially two-dimensional, as is required in Claims 124 and 126-132.

Similar to that mentioned above in reference to amended Claim 112, an embodiment of such a substantially two-dimensional array (of Claim 124) is described in the Application, p. 38 *ll.* 25-30, wherein [This] "substantially two-dimensional array is made up of single-walled nanotubes aggregating (e.g., by van der Waals forces) in substantially parallel orientation to form a monolayer extending in directions substantially perpendicular to the orientation of the individual nanotubes." and p. 39 *ll.* 1-5, "Such a molecular array is illustrated schematically in **Fig. 8**. In this Figure, nanotubes 802 are bound to a substrate..." Fig. 8 shows nanotubes with short lengths perpendicular to a two-dimensional plane on a substrate, wherein the nanotubes are also perpendicular to the substrate. In contrast, *Kiang* describes nanotubes that "grow radially from the surface of 10-100 nm diameter particles of metal carbide, giving rise to what has been dubbed "sea urchin" particles" *Kiang,* p. 903, col. 2, par. 2. *Kiang* further describes "nanotubes in the soot, shorter single-layer tubes growing radially (urchin style) for *fcc*-Ni or NiC_3 particles in the rubbery collar that forms around the cathode...", *Kiang*, p. 903, col. 2, par. 3 to p.904, col. 1, par. 1. These nanotubes described by *Kiang* radiate at all angles from the 10-100 nm metal carbide particles, and do not form a two-dimensional array of single-wall carbon nanotubes in substantially parallel orientation.

Furthermore, *Kiang* describes, "...single-layer nanotubes in both the soot and in web-like material attached to the chamber walls" *Kiang*, p. 903, col. 2, par. 1, and in another instance, "On the cold walls, a primary soot is deposited. In normal fullerene production, this soot has a crumbly, flocculent character." *Kiang*, p. 904, col. 2., par. 2. The single-wall carbon nanotubes that are found in the soot described by *Kiang* are randomly oriented in the soot and randomly oriented with regard to a surface, such as a chamber wall. *Kiang* further notes that "the process of pulling the tubules out of the soot mass has aligned them to a striking degree" *Kiang*, p. 905, col.1, par. 2 and col. 2., par. 1, which is indicative that the nanotubes were not in substantially parallel alignment in the soot. Also, *Kiang* gives no indication that they are a monolayer. The bundles of *Kiang* would not be recognized by persons of skill in the art as being substantially two-dimensional arrays comprising single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein the single-wall carbon nanotubes are attached to a substrate.

Claims 126-132, which depend from Claim 124, are also not anticipated for the same reasons as stated above for Claim 124.

Claims 122-123 and 136-137. Regarding Claims 122-123 and 136-137, Examiner contends that "a nanotube must be of the (n,n) or (m,n) helicity index. A mix is expected to occur due to what is known about growth conditions; bundles of predominantly (n,n) as well as bundles of predominantly (m,n) are therefore expected to occur." Office Action at 4. As noted above, Claims 122-123, which depend from amended Claim 112, are not anticipated for the same reasons as stated above for amended Claim 112. Claims 136-137, which depend from Claim 124, are not anticipated for the same reasons as stated above for Claim 124.

Additionally, and as further noted above, it is quite common that individual bundles of nanotubes are not homogenous. Thus, Claims 122-123 and 136-137 further contain limitations not disclosed in *Kiang*. For this further reason, none of these claims are anticipated.

As a result of the foregoing, Applicant respectfully requests that the Examiner withdraw the rejection of Claims 112-119, 122-124, 126-132, and 136-137 under 35 U.S.C. § 102(a) as being anticipated by *Kiang*.

IV. REJECTIONS UNDER 35 U.S.C. § 103

A. REJECTIONS UNDER 35 U.S.C. § 103 OVER *DE HEER*

Examiner has rejected Claims 124, 127 and 136-137 under 35 U.S.C. § 103(a) as being unpatentable over *de Heer et al.,* "Aligned Carbon Nanotube Films: Production and Optical and Electronic Properties," *Science*, **1995**, *268*, 845-847 ("*de Heer*"). Office Action at 4.

Examiner contends that *de Heer* "teaches a method for the alignment of carbon nanotubes in a substantially parallel orientation. The method is based on drawing a suspension of nanotubes through a small pore ceramic filter and transferring the deposited material to a polymer surface, or substrate. *De Heer* does not explicitly teach that the process is used to align single-walled carbon nanotubes, however, it would have been obvious to one of ordinary skill at the time of invention to apply the treatment of *de Heer* at al. on a sample of single-walled nanotubes, in order to align them to a substantially parallel orientation for optimal electronic effect." Office Action at 5.

Examiner is reminded that, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *See* M.P.E.P. 706.02(j); *see also In re Vaeck,* 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Claim 124. Claim 124 requires "A substantially two-dimensional array comprising single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein the single-wall carbon nanotubes are attached to a substrate." The carbon nanotubes of *de Heer* are multi-walled carbon nanotubes that have been positioned parallel to a polymer surface. *de Heer* uses multiwall carbon nanotubes which are known not to aggregate in parallel orientation, and they are resting on, but not attached to a substrate. Therefore, it would not have been obvious to

apply the treatment of *de Heer* to obtain the array of Claim 124. The mechanical rubbing employed by *de Heer* would not provide substrate attachment and would also be an unlikely method by which single-wall carbon nanotubes could be oriented.

Claim 127. Claim 127 depends from Claim 124 and, therefore, is not obvious for similar reasons as stated above for Claim 124. In addition to the elements of Claim 124, Claim 127 further requires that the "substantially parallel oriented single-wall carbon nanotubes form a monolayer on the substrate." *de Heer* does not teach a monolayer. Even if *de Heer* disclosed a monolayer of multi-wall carbon nanotubes, such a small amount of material could not be oriented by the mechanical rubbing process disclosed in *de Heer*.

Claims 136-137. With regard to Claims 136-137, Examiner further contends, "that a nanotube must be of the (n,n) or (m,n) helicity index. A mix is expected to occur due to what is known about growth conditions; areas of predominantly (n,n) as well as area of predominantly (m,n) are therefore expected to occur in arrays formed by the method of *de Heer et al.*" Office Action at 5.

Claims 136-137 depend from Claim 124, and as they include all of the elements of Claim 124, are, therefore, not obvious for similar reasons as stated above for Claim 124. Additionally, Claims 136-137 require single-wall carbon nanotubes of a predominate type. *de Heer* does not teach arrays of single-wall carbon nanotubes of a predominate type.

In addition to the foregoing, while it is understood in the art that certain reaction and growth conditions yield product that is predominately (n,n) or predominately (m,n), Applicant also describes post-synthesis methods for generating homogeneous populations of single-walled carbon nanotubes. Application, page 32, *ll.* 22-30; and page 33, *ll.* 1-13. This further reflects the non-obviousness of the claim.

Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of Claims 124, 127, and 136-137 under 35 U.S.C. § 103(a) as being unpatentable over *de Heer*.

B. REJECTIONS UNDER 35 U.S.C. § 103 OVER *DE HEER* IN VIEW OF *GE*

Examiner has rejected Claims 126, and 128-132 under 35 U.S.C. § 103(a) as being unpatentable over *de Heer*, as applied to Claim 124 above, and further in view of *Ge et al.*, "Scanning tunneling microscopy of single-shell nanotubes of carbon," *Appl. Phys. Lett.*, **65**(18), 2284-2286 (1994) ("*Ge*"). Office Action at 5. Applicants traverse the rejections of these claims.

Examiner contends that "*Ge* teaches single-walled carbon nanotubes having a homogeneous diameter of 1 nm (+ or – 0.1 nm) and having lengths of about 20 nm. Examiner further contends that it would have been obvious to one of ordinary skill at the time of invention to apply the treatment of *de Heer et al.* on the single-walled nanotubes of *Ge et al.*, in order to align them to a substantially parallel orientation for optimal electronic effect.

Applicant notes that *Ge* only describes two nanotubes, and that no meaningful assessment of the homogeneity of nanotube diameters is therefore provided by *Ge*. Furthermore, it is unlikely that the miniscule quantities of single-wall carbon nanotubes produced by *Ge* are actually separable from the graphitic surfaces on which they are formed. Therefore, any combination of *Ge* with other works to support an obviousness rejection is misplaced.

Additionally, Claims 126 and 128-132 all depend either directly or indirectly from Claim 124, and, therefore, are not obvious for similar reasons as stated above for Claim 124.

Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of Claims 126 and 128-132 under 35 U.S.C. § 103(a) as being unpatentable over *de Heer* in view of *Ge*.

C. REJECTION UNDER 35 U.S.C. § 103 OVER *DE HEER* IN VIEW OF *GREEN*

Examiner has rejected Claim 133 under 35 U.S.C. § 103(a) as being unpatentable over *de Heer* as applied to Claim 124 above, and further in view of *Green et al.*, United States Patent No. 6,090,363 ("*Green*"). Office Action at 5.

Examiner contends "*De Heer* does not teach a single-walled nanotube having an endohedral modification. Green teaches a process whereby nanotubes are treated and purified in nitric acid. *Green* additionally teaches that materials, such as a variety of metals, may be endohedrally added to the nanotubes during the purification process. *Green et al.* does not

explicitly teach that the process be used for the purification of single-walled nanotubes, however, it would have been obvious to one of ordinary skill at the time of invention to perform the treatment of *Green et al.* on single walled nanotubes, in order to remove impurities and introduce endohedral species prior to alignment." Office Action at 6.

Claim 133. Claim 133 depends from Claim 124, and is therefore not obvious for reasons similar to that described above for Claim 124. In addition to requiring "[a] substantially two-dimensional array comprising single-wall carbon nanotubes aggregated in substantially parallel orientation, wherein the single-wall carbon nanotubes are attached to a substrate," Claim 133 further requires that such an array comprise "endohedrally modified single-wall carbon nanotubes." While *Green* does teach the endohedral modification of multi-wall carbon nanotubes, *Green* does not provide all the features lacking in *de Heer* (see above). *de Heer* and *Green* do not, alone or in combination, disclose or suggest the features of the claimed invention. Therefore, Claim 133 is not obvious.

Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of Claim 133 under 35 U.S.C. § 103(a) as being unpatentable over *de Heer* in view of *Green.*

D. REJECTION UNDER 35 U.S.C. § 103 OVER *KIANG* WITH *ZHANG* IN VIEW OF *HIURA* WITH *SEN*

Examiner has rejected Claim 120 under 35 U.S.C. § 103(a) as being unpatentable over *Kiang* with *Zhang,* as applied above, and further in view of *Hiura et al.*, United States Patent No. 5,698,175 ("*Hiura*") with *Sen et al.*, "Structures and Images of Novel Derivatives of Carbon Nanotubes, Fullerenes and Related New Carbon Forms," Fullerene Science and Technology, Vol. 5(3), pp. 489-502, 1997, ("*Sen*") to show a "state of fact." Office Action at 6.

Examiner contends "Neither *Kiang* nor *Zhang* teaches bundles containing a single-wall nanotube having a substituent on the end. *Hiura* teaches a process for the purification of carbon nanotubes. The process comprises treating the nanotubes with an aqueous oxidizing agent, such as nitric acid, in solution. The nanotubes are dispersed into the solution and heated in order to selectively react the carbon impurities to dissolve in the liquid phase. The nanotubes are then separated from the liquid by filtering, washing, and drying. *Hiura* does not explicitly teach the

process be used for the purification of single-walled nanotubes, however, it would have been obvious to one of ordinary skill at the time of invention to apply the treatment of *Hiura* on a sample containing bundles of single-walled nanotubes, in order to remove impurities. *Sen et al.* teaches that when nanotubes are reacted with nitric acid or other oxidizing agents, such reactions are known to result in the functional groups, especially –COOH, at the tips (page 493). Substituent groups inherently exist on the ends of nanotubes treated by the process of *Hiura et al.*"

Applicant respectively points out that, as above, *Zhang* is not a proper prior art reference.[2]

Claim 120. Claim 120 depends from amended Claim 112. Amended Claim 112 and Claim 120 both require "[a] substantially two-dimensional array comprising single-wall carbon nanotubes." Per the reasons stated above for Claim 112, Claim 120 is similarly not obvious. Additionally, Claim 120 further requires that such an array comprise "single-wall carbon nanotubes with at least one substituent bonded at at least one end of the single-wall carbon nanotubes." While *Hiura* and *Sen* teach oxidative treatments of multi-wall carbon nanotubes that may introduce oxidative substituents to the ends of the nanotubes and elsewhere, none of *Kiang*, *Hiura* and *Sen*, either alone or in combination, teach or suggest an array with all of the elements of Claim 120, *i.e.*, a substantially two-dimensional array comprising single-wall carbon nanotubes with at least one substituent bonded at at least one end of the single-wall carbon nanotubes.

Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of Claim 120 under 35 U.S.C. § 103(a) as being unpatentable over *Kiang* with *Zhang* in view of *Hiura* with *Sen*.

E. REJECTION UNDER 35 U.S.C. § 103 OVER *KIANG* WITH *ZHANG* IN VIEW OF *GREEN*

Examiner has rejected Claim 121 under 35 U.S.C. § 103(a) as being unpatentable over *Kiang* with *Zhang*, as applied to claim 112 above, and further in view of *Green*.

Examiner contends "*Green* teaches a process whereby the nanotubes are treated and purified in nitric acid. Green additionally teaches that materials, such as a variety of metals, may be endohedrally added to the nanotubes during the purification process. *Green et al.* does not explicitly teach that the process be used for the purification of single-wall carbon nanotubes, however it would have been obvious to one of ordinary skill at the time of invention to perform the treatment of *Green et al.* on a sample containing bundles of single walled nanotubes, in order to remove impurities and introduce endohedral species." Office Action at 6-7.

Again, Applicant respectively points out that *Zhang* is not a proper prior art reference.[2]

Claim 121. Claim 121 depends from amended Claim 112. Amended Claim 112 and Claim 121 both require "[a] substantially two-dimensional array comprising single-wall carbon nanotubes." Per the reasons stated above for Claim 112, Claim 121 is similarly not obvious. Additionally, Claim 121 further requires that such an array comprise "endohedrally modified single-wall carbon nanotubes." While *Green* does teach the endohedral modification of multi-wall carbon nanotubes, *Green* does not provide all the features lacking in *Kiang* (*e.g.*, a substantially two-dimensional array). Furthermore, neither *Kiang* nor *Green*, either alone or in combination, teach or suggest an array with all of the elements of Claim 121, *i.e.*, a substantially two-dimensional array comprising endohedrally-modified single-wall carbon nanotubes.

Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of Claim 121 under 35 U.S.C. § 103(a) as being unpatentable over *Kiang* with *Zhang* in view of *Green*.

V. ALLOWABLE SUBJECT MATTER

The Examiner indicated that Claim 134 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Office Action at 7.

Claim 134. As to Claim 134, this claim has been amended and written in independent form including all of the limitations of the base claim and any intervening claims.

The Examiner indicated Claims 125, 135, 138 and 140 are allowed. Office Action at 7.

VI. AMENDMENTS TO THE DRAWINGS

The present application and United States Patent Application Serial No. 10/027,568, filed December 21, 2001 ("the '568 Patent Application") are both divisional patent applications of the United States Patent Application Serial No. 10/000,746, filed November 30, 2001, all of which applications are commonly assigned. On October 7, 2002, a Notice of Allowance was transmitted to Applicant for the '568 Patent Application; and Applicant paid the issue fee on October 16, 2002. Subsequently, on March 20, 2003, Applicant received a Notice Regarding Drawings for the '568 Patent Application. Specifically, the Draftperson's review objected to the drawings for Figures 2A-C, 4A-D, 6, and 7A-B for the following reasons set forth on PTO Form 948, which was attached to the Notice Regarding Drawings for the '568 Patent Application. These were:

(a) Under 37 C.F.R. § 1.84(i), for Figures 2A-C, 4A-D, 6, and 7A-B, "[l]ines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality)."

(b) Under 37 C.F.R. § 1.84(m), for Figures 2A-C, 4A-D, 6, and 7A-B, "[s]olid black shading not permitted."

(c) 37 C.F.R. § 1.84(p), for Figures 4A-D, 6, and 7A-B, "[n]umbers and reference characters not plain and legible."

On May 19, 2003, Applicant filed its Response to Notice Regarding Drawings in the '568 Patent Application. In this response, Applicant replaced new drawing sheets 3/14, 6/14, 8/14, 9/14 and 10/14 for the original sheets. These sheets include more legible Figures 2A- 2C, 4A-4D and 6 – 7B as requested by the Draftsperson. in the Notice Regarding Drawings for the '568 Patent Application.

As the present Application contains these same drawings, Applicant is submitting these improved figures in the present Application. Pursuant to 37 C.F.R. 1.84(b), the improved figures are submitted as photographs, as this is the only practicable medium for illustrating these figures.

Applicant has amended the drawings to facilitate prosecution of the present Application; Applicant believes by doing so, this will obviate this potential issue with the figures.

VII. AMENDMENTS TO THE SPECIFICATION

After Applicant filed its Response to Notice Regarding Drawings in the '568 Patent Application, Applicant received a Notice of Drawing Inconsistency with Specification in the '568 Patent Application, dated June 2, 2003. In this Notice, Applicant was informed that the USPTO had received the improved figures (which presumably were accepted by the draftsperson) but the USPTO had now identified an inconsistency between the drawings and the Brief Description of Drawings in the '568 Patent Application. These were: The Brief Description referred to Figures 3A-3B and 5A-5B while the drawings contained Figures 3A-3C and 5A-5C. On June 30, 2003, Applicant filed its Amendment in Response to Notice of Drawing Inconsistency with Specification in the '568 Patent Application. In that amendment, Applicant amended the Brief Description of Drawings and the Detailed Description of the Invention, in the identical manner as presented on page 2 above.

Because this same issue exists in the present Application, Applicant is amending the specification in the same manner as they did in the '568 Patent Application. Accordingly, in the specification, the paragraphs within the Brief Description of Drawings have been amended to correctly identify the drawings. In the Detailed Description of the Invention of the Specification, the amendment of the paragraph beginning at page 18, *l.* 11, was made to harmonize the written description and the drawings. No new matter is added by these amendments to the specification.

The Applicant believes this amendment reconciles the inconsistency between the drawing and the Brief Description of the Drawing. Again, Applicant is amending the specification to facilitate prosecution of the present Application. Applicant believes by doing so, this will obviate this potential issue between the drawings and the specification.

VIII. CONCLUSION

As a result of the foregoing, it is asserted by Applicant that the Claims in the Application are now in a condition for allowance, and respectfully request allowance of such Claims.

Applicant respectfully requests that the Examiner call Applicant's attorney at the below listed number if the Examiner believes that such a discussion would be helpful in resolving any remaining problems.

Respectfully submitted,

WINSTEAD SECHREST & MINICK P.C.
Attorneys for Applicant

By: _____
Ross Spencer Garsson
Reg. No. 38,150

P.O. Box 50784
Dallas, Texas 75201
(512) 370-2870

AUSTIN_1\245373\1
11321-P011C1D3 03/08/2004